

Application No. 10/609,121
Filed: June 27, 2003
TC Art Unit: 1722
Confirmation No.: 6700

REMARKS

The foregoing amendment is filed in response to the official action dated September 6, 2005. Reconsideration is respectfully requested.

The status of the claims is as follows:

Claims 1-4 are currently pending.

Claims 1-4 stand rejected.

Claims 1 and 4 have been amended.

Claim 2 has been canceled without prejudice.

The Examiner has rejected claims 1 and 3 under 35 U.S.C. 103(a) as being unpatentable over Hume et al. in view of Swenson et al. and further in view of Kofsman et al. (USP 5,804,228). In addition, the Examiner has rejected claims 2 and 4 under 35 U.S.C. 103(a) as being unpatentable over Hume et al. in view of Swenson et al. in view of Kofsman et al. and further in view of Ciccone. The Applicants respectfully submit, however, that base claim 1 and claims 3-4 dependent therefrom, as amended, are patentable over the art of record.

For example, amended claim 1 recites, in relevant part, an injection mold including a cavity mold and a hot-runner mold provided with a needle-valve-nozzle, in which the nozzle includes a nozzle body having an opening formed in the end face of the

-4-

REINGARTEN, SCHUMGIN,
GAGNEBIN & LEDOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Application No. 10/609,121

Filed: June 27, 2003

TC Art Unit: 1722

Confirmation No.: 6700

nozzle, and a short cylindrical tip that is formed of metal having lower thermal conductivity than the nozzle body and has a flat end face and a nozzle orifice in the center of the end face, the tip having an inner peripheral wall face extending to the nozzle orifice, the inner peripheral wall face being formed in a conical face having the same angle as the conical end portion of a needle mounted in the needle-valve-nozzle and being fitted on the end portion of the needle to close the nozzle orifice and to support the tip, the tip being slidably fitted in the opening formed in the end face of the nozzle in such a way that the end face of the tip is protruded from the end face of the nozzle and directly nozzle-touched the gate of the sprue of the cavity. Such an injection mold including a nozzle body 22a and a tip 4 having a nozzle orifice 4a made in the center of the end face of the tip 4 and an inner peripheral wall face 4b extending to the nozzle orifice 4a, in which the inner peripheral wall face 4b and an end inner peripheral wall face 22c of the nozzle body 22a are formed in a conical face having the same angle as a conical needle end portion 26a, is described throughout the instant application, for example, see page 4, lines 28-32, and Figs. 1-2, of the application.

Application No. 10/609,121
Filed: June 27, 2003
TC Art Unit: 1722
Confirmation No.: 6700

Specifically, as shown in Fig. 1 of the application, the tip 4 includes the nozzle orifice 4a and the inner peripheral wall face 4b extending to the nozzle orifice 4a. As further shown in Figs. 1-2 of the application, the inner peripheral wall face 4b and the end inner peripheral wall face 22c of the nozzle body 22a are formed in a conical face having the same angle as the conical needle end portion 26a. As a result, when the needle 26 is mounted in the needle-valve-nozzle, the tip 4 is fitted on the end portion of the needle 26, thereby closing the nozzle orifice and providing support for the tip (see page 5, lines 1-3, and Fig. 1 of the application).

On page 5 of the official action, it is indicated that the combination of the Hume, Swenson, and Kofsman references teaches the subject matter of claims 1 and 3, with the exception of a nozzle tip with an inner peripheral wall face being formed in a conical face having the same angle as the conical end portion of a needle mounted in the nozzle and being fitted on the end portion of the needle. The official action further indicates that the Ciccone reference teaches the use of a nozzle insert in the form of a direct sprue nozzle tip with a central passage communicating with the central bore inlet portion (see column 2, lines 55-56, of Ciccone), in which the nozzle insert tapers conically to mirror

-6-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0212

Application No. 10/609,121
Filed: June 27, 2003
TC Art Unit: 1722
Confirmation No.: 6700

the conical end portion of a needle mounted in the nozzle (see elements 34, 38, and Fig. 3, of Ciccone).

The Applicants respectfully submit, however, that the Hume, Swenson, Kofsman, and Ciccone references, whether taken alone or in combination, do not render the subject matter of amended claim 1 and the claims dependent therefrom obvious. First, it is respectfully pointed out that the official action provides no indication that any one of the apparatuses disclosed in the Hume, Swenson, Kofsman, and Ciccone references employs a needle. Instead, the official action indicates that Ciccone teaches the use of a nozzle insert 34 (see Figs. 1-3 of Ciccone), which is described as being in the form of a direct sprue nozzle tip. Although the official action goes on to indicate that the nozzle insert 34 tapers conically to mirror the conical end portion of a needle, no such needle is disclosed anywhere within the Ciccone reference or any of the other cited references.

Even if the nozzle insert 34 of Ciccone were considered to correspond to a needle with a conical end portion instead of a nozzle tip, the suggested combination of the Hume, Swenson, Kofsman, and Ciccone references still would not render the subject matter of amended claim 1 obvious. This is because the suggested combination would neither teach nor fairly suggest a nozzle tip

-7-

WEINGARTEN, SCHURGIN,
GARNETT & LEBOVITZ LLP
TEL. (617) 542-2290
FAX. (617) 541-0213

Application No. 10/609,121
Filed: June 27, 2003
TC Art Unit: 1722
Confirmation No.: 6700

having an inner peripheral wall face extending to the nozzle orifice, the inner peripheral wall face being formed in a conical face having the same angle as the conical end portion of a needle mounted in the needle-valve-nozzle and being fitted on the end portion of the needle to close the nozzle orifice and to support the tip, as recited in amended claim 1.

On page 4 of the official action, it is indicated that the Kofsman reference teaches the use of an injecting nozzle assembly, which is comprised of a nozzle housing and a nozzle tip section. However, unlike the tip 4 illustrated in Fig. 1 of the application, the nozzle tip section 60 illustrated in Fig. 3 of Kofsman et al. does not comprise an inner peripheral wall including any portion that might be construed as having the same angle as a conical end portion of a "needle", e.g., the conical end portion of the nozzle insert 34 (see Figs. 2-3 of Ciccone). In addition, the Applicants point out that a spiral flow tip member 98 disposed within the nozzle tip section 60 of Kofsman et al. has opposing conical end portions that extend beyond the confines of the inner wall of the nozzle tip section 60 (see Fig. 3 of Kofsman et al.). Clearly, Kofsman et al. did not contemplate providing the nozzle tip section 60 with an inner peripheral wall

Application No. 10/609,121
Filed: June 27, 2003
TC Art Unit: 1722
Confirmation No.: 6700

portion having the same angle as a conical end portion of any other element including a needle.

The suggested combination of the Hume, Swenson, Kofsman, and Ciccone references therefore neither teaches nor fairly suggests an injection mold including a cavity mold and a hot-runner mold provided with a needle-valve-nozzle, in which the nozzle includes a nozzle body and a short cylindrical tip having an inner peripheral wall face extending to the nozzle orifice, the inner peripheral wall face being formed in a conical face having the same angle as the conical end portion of a needle mounted in the needle-valve-nozzle, as recited in amended claim 1. Further, the combination of the Hume, Swenson, Kofsman, and Ciccone references neither teaches nor fairly suggests the inner peripheral wall face fitted on the end portion of the needle to support the tip and to close the nozzle orifice, as recited in amended claim 1.

Because the suggested combination of the Hume, Swenson, Kofsman, and Ciccone references neither teaches nor suggests the subject matter of amended claim 1, the suggested combination of these references does not render amended claim 1 and the claims dependent therefrom obvious. Accordingly, it is respectfully submitted that the rejections of the claims under 35 U.S.C. 103 should be withdrawn.

Application No. 10/609,121
Filed: June 27, 2003
TC Art Unit: 1722
Confirmation No.: 6700

In view of the foregoing, it is respectfully submitted that the present application is in a condition for allowance. Early and favorable action is respectfully requested.

The Examiner is encouraged to telephone the undersigned Attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

SETSUYUKI TAKEUCHI, ET AL.

By: 

Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicants

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, MA 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

CLG/pjd
Enclosure
329571

-10-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313